

**REMARKS**

**Interview Statement:**

Applicants appreciate the Examiner's courtesy in granting the interview of December 8, 2009 with the undersigned. Applicants' representative pointed out differences between the method of making a preform of the invention (by compression-forming a melt-extruded molten resin mass) with that of Yamada et al (melt-extruding a multi-layer pipe, re-heating both ends and forming a bottom by crushing the open end of the pipe and melt-adhering the resin). Applicants' representative urged that one can intuitively recognize that the structures resulting from the different processes are materially different. The undersigned proposed to amend claim 1 to recite that the preform is formed by compression-forming a melt-extruded molten resin mass, and that "the melt-extruded molten resin mass remains in a molten state until it is subjected to the compression forming" different from Yamada et al which calls for re-heating.

The Examiner was not convinced that the resulting structures are different. Regarding this last point, the Examiner noted that Yamada et al uses the term "compression forming" in describing how the bottom of the preform is made, and questioned why the compression-forming of Yamada et al would provide a product different from the compression-forming recited in present claim 1. Further, the Examiner considered that even if the open end of the multi-layer pipe of Yamada et al is re-heated and collapsed, the resulting structure could still maintain a continuous multi-layer structure.

The Examiner considered that the language of claim 1 (as proposed to be amended) also did not adequately distinguish over a "pinch-off structure" (where the multilayer structure is discontinuous at the bottom of the preform), reasoning that the term "continuous through the body and bottom portion" is met if the multi-layer structure continues through part of the bottom

portion, and further noted that claim 1 does not rigorously differentiate the body from the bottom portion. The Examiner also suggested that the term “continuous” be applied to the intermediate layer so as to clearly distinguish the preform of the invention (as shown in Fig. 3 of the specification) from a “pinch-off” structure.

The undersigned proposed the following language, which the Examiner accepted as distinguishing over a “pinch-off” structure, as follows.

**...the intermediate layer runs continuously through the  
body and entire bottom portion**

The Examiner further asked for objective evidence as to the structure of the preform in Yamada et al, and indicated that Declaration evidence on point would be helpful in advancing prosecution. Particularly, the Examiner suggested that Applicants submit objective evidence which shows the structure of the preform in Yamada et al, and also a claim amendment, as noted above, which claims the specific difference in structure.

**Response to Office Action:**

In reference to Fig. 3, claim 1 has been amended to recite that the preform 20 includes a body 22 and a bottom portion 23, which preform has a multi-layer structure that is continuous through the body and bottom portion. Further, the multi-layer structure has layers of an ethylene terephthalate unit-containing polyester resin as inner 24 and outer layers 26 sealing at least one layer of a gas-barrier resin or a recycled polyester resin as an intermediate layer 25. Support is found at page 15, lines 3-14 of the specification. Claim 1 additionally has been amended, as discussed in the interview of December 8, 2009, to recite that the intermediate layer runs continuously through the body and entire bottom portion as shown, for example, in Fig. 3 of the specification.

Claim 1 has been further amended to recite that the multi-layer structure is formed by compression forming a melt-extruded molten resin mass. As claimed in new claims 10 and 11 depending from claims 1 and 6, respectively, the melt-extruded molten resin mass remains in a molten state until it is subjected to the compression-forming. This aspect of the invention is illustrated in Fig. 2 and described at page 3, line 30 - page 14, line 14 of the specification. As described therein, resin A for forming the inner and outer layers and resin B for forming the intermediate layer are melt-extruded from a nozzle 5 so as to seal the resin B in the resin A. The resulting composite molten resin 7 that is extruded is cut into a predetermined size. Immediately after being cut, a mass 8 of the composite molten resin is held by a jig and is conveyed into a female mold 9 of the compression-forming apparatus constituted by the female mold 9 and a male mold 10. The mass 8 of the composite molten resin in the female mold 9 is compression-formed by the male mold 10 to form a multi-layer preform having an intermediate layer sealed by the inner layer and the outer layer.

Claim 6 has been similarly amended.

New claims 12 and 13 depending from claims 10 and 11, respectively, recite that the melt-extruded molten resin mass is a melt-extruded composite molten resin mass.

Entry of the amendments and review and reconsideration on the merits are requested.

In response to rejection under 35 U.S.C. § 112, second paragraph, claim 1 has been amended to clearly recite the multi-layer structure of the claimed preform. Namely, as claimed in amended claim 1, the preform includes a body and a bottom portion, the preform having a multi-layer structure that is continuous through the body and bottom portion.

It is respectfully submitted that the claims as amended fully comply with 35 U.S.C. § 112, and withdrawal of the foregoing rejection is respectfully requested.

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,528,219 to Yamada et al. Yamada et al was cited as disclosing a preform meeting the structural and compositional limitations of the rejected claims, including a continuous multi-layer structure formed by compression-forming a molten resin mass. In this regard, the Examiner cited the re-heated pipe disclosed at col. 7, lines 4-14 and at col. 11, lines 47-49 as meeting the claimed "molten resin mass," and further considered that the claimed continuous multi-layer structure is met because the walls of the body (of the preform of Yamada et al) are continuous.

The rejection should be withdrawn because Yamada et al does not disclose or suggest a preform including a body and a bottom portion, the preform having a multi-layer structure that is continuous through the body and bottom portion, and wherein the intermediate layer runs continuously through the body and entire bottom portion as recited in amended claim 1.

In obtaining a preform for a bottle, Yamada et al (at col. 7, lines 8-14) describes that:

**In case of a preform for a bottle, ... the extruded melt multi-layer pipe is quenched and then cut into a predetermined length, and then both the ends of the resulting pipe having openings on both the ends are heated and formation of the mouth and fusion bonding of the bottom are accomplished by compression forming.**

In Example 4, Yamada et al discloses extruding a plurality of resin layers from a multi-layer pipe extrusion device. The molten pipe thus obtained was molded into a pipe having both ends open by means of a pipe molding device comprised of a sizing unit, a cooling tank and a cutter. The upper and lower end portions of the resulting pipe were re-heated, and by a compression molding method, a threaded mouth portion and a bottom portion were formed to give a preform. That part of the preform other than the threaded mouth portion was heated and

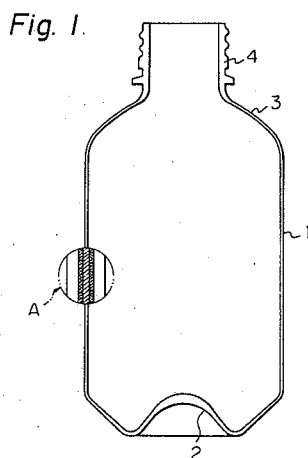
subjected to blow molding to form a bottle including a body portion and bottom having the shape shown in FIG. 1 (col. 11, line 22-58).

By re-heating both ends of a pipe having a multi-layer structure and forming a threaded mouth portion and a bottom portion by compression molding, the bottom portion is shaped by crushing the open end of the pipe and melt-adhering the resin. As a result, the multi-layer structure of the pipe collapses in the bottom portion. That is, in the preform of Yamada et al, the intermediate layer is interrupted in the bottom portion, and the multi-layer structure does not continue therein.

To the contrary, the preform of present claim 1 has a multi-layer structure that is continuous through the body and bottom portion, and wherein the intermediate layer runs continuously through the body and entire bottom portion. This structure is achieved by compression-forming a melt-extruded molten resin mass. Unlike Yamada et al where the open end of a pipe having a multi-layer structure is re-heated, crushed (the open-end is necessarily crushed in order to form a bottom) and shaped into a bottom by compression molding, the melt-extruded molten resin mass, as claimed in claim 1, remains in a molten state until it is subjected to the compression-forming. As a result, the preform of the invention maintains a multi-layer structure including an intermediate layer that runs continuously through the body and entire bottom portion.

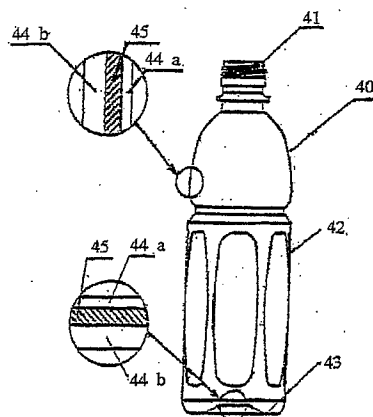
Tellingly, the bottle of FIG. 1 of Yamada et al obtained by draw-blow-forming a preform shows barrel 1 having a multi-layer structure, where no such structure is indicated for bottom portion 2. As shown in FIG. 2 and disclosed at col. 2, lines 46-54, the wall of the barrel has a multi-layer structure. However, there is no description of the bottom 2 having such a multi-layer structure. To the contrary, Fig. 4 of the specification shows both of the container body 42 and

Yamada et al



## Invention

Fig. 4



In his Declaration, Mr. Funaoka analyzed the composition and structure of a pipe and preform disclosed in U.S. Patent 4,528,219 to Yamada et al.

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Development staff are the same as those described in his U.S. Patent 4,528,219 as explained bridging pages 2-3 of his Declaration.

Further, based on photographs of the old stock multi-layer extruded pipe and preform delivered by the TOYO SEIKAN Research & Development staff, Mr. Yamada concluded that the multi-layer structure does not run continuously through the body and entire bottom portion of the preform (page 3 of the Declaration). Lastly, bridging pages 3-4 of the Declaration, Mr. Yamada describes the process for obtaining a preform for a bottle as described in his patent, and explains why such process, which includes re-heating both ends of the pipe and forming a threaded mouth portion in the bottom portion by compression molding, where the bottom portion is shaped by crushing the open pipe and melt-adhering the resin, results in a multi-layer structure that is collapsed in the bottom portion as shown in Fig. 6 attached to the Declaration. Based thereon, Mr. Yamada concludes that in the preform of his patent, the intermediate layer was interrupted in the bottom portion, and the multi-layer structure did not continue therein.

In summary, the present claims have been amended to structurally distinguish over the preform of Yamada et al which does not have a multi-layer structure including an intermediate layer that runs continuously through the body and entire bottom portion as claimed in amended claim 1. Further, the Declaration of Mr. Yamada in conjunction with the Declaration of Mr. Funaoka demonstrates that in the preform of U.S. Patent 4,528,219, the intermediate layer was interrupted in the bottom portion, and the multi-layer structure did not continue therein. Thus, because Yamada et al does not meet one or more structural features of the claimed invention, the amended claims are not anticipated by Yamada et al, and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested. Moreover, due to the above-noted distinct differences in processing methods, one of ordinary skill could not readily

arrive at the preform of the present invention based on the disclosure of Yamada et al. For this additional reason, the amended claims are also patentable over the cited prior art.

Method claim 6 has been amended to include all of the limitations of amended product claim 1. If product claim 1 is found to be patentable, Applicants respectfully request rejoinder of the withdrawn method claims pursuant to MPEP § 821.04.

Withdrawal of all rejections, rejoinder of method claims 6-8 and allowance of claims 1-3, 6-8 10-13 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Abraham J. Rosner  
Registration No. 33,276

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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